WHAT IS CLAIMED IS:

1. A method, comprising:

receiving a list of waveforms that is to be driven to or received from a pin of a device under test; each waveform being associated with a weight;

for each of at least two waveforms in the list, calculating a number of test sample points lost by masking the waveform with a particular parent waveform in a child-parent waveform map; the number of lost test sample points being determined by i) a difference in the number of test sample points in the waveform and the number of test sample points in the particular parent waveform, and ii) the weight associated with the waveform; and

in response to said calculations, implementing a waveform masking that results in fewer lost test sample points than another waveform masking.

2. The method of claim 1, wherein the weights are statistical weights.

3. The method of claim 1, wherein the weights are priority weights.

4. The method of claim 1, wherein each waveform in the list comprises N test sample points, and wherein the child-parent waveform map comprises all combinations of the N test sample points, regardless of

whether all combinations are found in the list.

5. The method of claim 4, wherein waveforms in the list are only masked with parent waveforms in the list.

6. The method of claim 4, wherein in response to said calculations, two or more waveforms in the list are masked with a common parent waveform that was previously not in the list; wherein the two or more waveform maskings, in combination, result in fewer lost test sample points than another single waveform masking.

7. The method of claim 4, wherein in response to said calculations, two or more waveforms in the list are masked with a common parent waveform that was previously not in the list; wherein the two or more waveform maskings, in combination, result in fewer lost test sample points than another two or more waveform maskings.

8. The method of claim 1, wherein in response to said calculations, a waveform masking that results in a fewest lost test sample points is implemented.

9. The method of claim 1, wherein in response to said calculations, a number of waveform maskings are implemented; said number of

waveform maskings being chosen to distill the number of waveforms in the list to a number of waveforms that can be stored in a particular waveform memory of a circuit tester.

10. The method of claim 1, wherein said calculations and waveform masking are repeated in an iterative process.

11. The method of claim 1, wherein in response to said calculations, a plurality of waveform maskings are implemented; said waveform maskings being chosen to, together, minimize lost test sample points.

12. The method of claim 11, wherein said calculations are performed using a simultaneous matrix analysis.

13. The method of claim 1, further comprising, with the implementation of each waveform masking, combining the weights of the two or more waveforms involved in the masking, and associating the combined weight with the parent waveform.

14. Apparatus, comprising:

a number of computer readable media; and

program code, stored on the computer readable media, defining:

an interface to receive a list of waveforms that is to be driven to or

received from a pin of a device under test; each waveform being associated with a weight;

code to, for each of at least two waveforms in the list, calculate a number of test sample points lost by masking the waveform with a particular parent waveform in a child-parent waveform map; the number of lost test sample points being determined by i) a difference in the number of test sample points in the waveform and the number of test sample points in the particular parent waveform, and ii) the weight associated with the waveform; and

code to, in response to said calculations, implement a waveform masking that results in fewer lost test sample points than another waveform masking.

15. The apparatus of claim 14, wherein the program code further comprises the child-parent waveform map; wherein each waveform in the list comprises N test sample points; and wherein the child-parent waveform map comprises all combinations of the N test sample points, regardless of whether all combinations are found in the list.

16. The apparatus of claim 14, wherein the program code only masks waveforms in the list with parent waveforms in the list.

17. The apparatus of claim 14, wherein in response to said calculations, the

code that implements waveform maskings is able to mask two or more waveforms in the list with a common parent waveform that was previously not in the list; and wherein the two or more waveform maskings, in combination, result in fewer lost test sample points than another single waveform masking.

18. The apparatus of claim 14, wherein in response to said calculations, the code that implements waveform maskings is able to mask two or more waveforms in the list with a common parent waveform that was previously not in the list; and wherein the two or more waveform maskings, in combination, result in fewer lost test sample points than another two or more waveform maskings.

19. The apparatus of claim 14, wherein in response to said calculations, the code that implements waveform maskings implements a number of waveform maskings, until the number of waveforms in the list is distilled to a number of waveforms that can be stored in a particular waveform memory of a circuit tester.

20. The apparatus of claim 14, wherein the code that performs said calculations and the code that implements waveform maskings are called in an iterative process.

21. The apparatus of claim 14, wherein in response to said calculations, the code that implements waveform maskings implements a plurality of waveform maskings; said waveform maskings being chosen to, together, minimize lost test sample points.

22. The apparatus of claim 21, wherein the code that performs said calculations conducts a simultaneous matrix analysis.

23. A circuit tester, comprising:

a plurality of driving probes and receiving probes;

a plurality of waveform memories;

means to associate said waveform memories with ones of said probes;

an interface to receive lists of waveforms that are to be driven to and received from said probes; each waveform being associated with a weight;

program code to, for each of at least two waveforms in a given list, calculate a number of test sample points lost by masking the waveform with a particular parent waveform in a child-parent waveform map; the number of lost test sample points being determined by i) a difference in the number of test sample points in the waveform and the number of test sample points in the particular parent waveform, and ii) the weight associated with the waveform;

program code to, in response to said calculations, implement a waveform masking that results in fewer lost test sample points than another waveform masking; and

program code to, after one or more waveform maskings have been implemented in one or more of the lists of waveforms, program ones of the waveform memories with waveforms remaining in the lists.

24. The circuit tester of claim 23, wherein in response to said calculations, the code that implements waveform maskings implements a number of waveform maskings in a particular list of waveforms, until the number of waveforms in the particular list is distilled to a number of waveforms that can be stored in a particular waveform memory of the circuit tester.